DOCUMENT RESUME

ED 444 576 IR 020 232

AUTHOR	Breithaupt, David L.
TITLE	Educational Technology Plans: Keys for Successful Implementation and Accountability.
PUB DATE	2000-00-00
NOTE	6p.; In: Society for Information Technology & Teacher Education International Conference: Proceedings of SITE 2000 (11th, San Diego, California, February 8-12, 2000). Volumes 1-3; see IR 020 112.
PUB TYPE	Opinion Papers (120) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Educational Planning; *Educational Technology; Elementary Secondary Education; Evaluation Methods; Instructional Development; State Standards; *Statewide Planning
IDENTIFIERS	Idaho; Technology Implementation; *Technology Integration; *Technology Plans; Technology Utilization

ABSTRACT

This paper reviews the efforts of the Idaho Council for Technology in Learning to provide consistent and thorough standards for planning for educational technology, presents keys for meeting those standards, and offers suggestions for using these keys to successfully implement and account for planned technology use in the curriculum. The planning process for educational technology is described, including: vision/mission statement and needs assessment; goal definition; instructional objectives; development and delivery of instruction; and evaluation of the instruction and student achievement. The following requirements for planning the evaluation of technology integration in the curriculum are addressed: describes quantitative and qualitative assessments to evaluate the effects of technology integration; details the relationship between local and state goals and instructional objectives, and measurement and assessment procedures; outlines plans to correlate results to the amount, quality, and length of integration into the curriculum; includes the details of gathering longitudinal and pretest-posttest data; details collection, organization, analysis, and reporting of measurement and assessment data; and includes schedules, funding sources, and budgets for evaluation. (MES)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 444 576

Educational Technology Plans: Keys for Successful Implementation and Accountability

David L. Breithaupt
Bureau of Technology Services
Idaho State Department of Education
United States
dbreit@sde.state.id.us

G.H. Marks

Abstract: In recent years, the providers of federal, state, local, and private funding for educational technology increasingly require more information and justification before funds are released. Planned expenditures must now be tied to stated educational goals, objectives, and standards, and funding providers are requiring some form of evaluation report to help determine the impact their dollars have made and to justify future funding. This paper reviews the efforts of the Idaho Council for Technology in Learning to provide consistent and thorough standards for planning for educational technology, keys for meeting those standards, and offers suggestions for using these keys to successfully implement and account for planned technology use in the curriculum.

Introduction

To facilitate the use of educational technology in Idaho public schools, the Idaho State Legislature created the Idaho Council for Technology in Learning (ICTL) in 1994. Since that time, the ICTL has been chaired by elected members of the state legislature and is made up of educators at all levels from across the state (Idaho State Department of Education, 1996, p. ii-iii). The legislation directed the Office of the State Board of Education (OSBE) to develop a statewide educational technology plan and required that each school district submit a district technology plan for approval by the Idaho State Department of Education (ISDE).

During the 1995-1996 school year, each district submitted a district technology plan. These covered implementation of technology during the years 1995-2000. In January 1996, the ISDE, in conjunction with the OSBE and ICTL, published *Connections: A Statewide Plan for Technology in Idaho Public Schools* (Idaho State Department of Education, 1996). The term for the district and state technology plans is approaching its end. All district technology plans and the state technology plan require updating during the 1999-2000 school year. To provide a statewide "thorough and consistent standard (Idaho Council for Technology in Learning, 1998)" for all technology plans, the ISDE published the District Technology Plan Evaluation Rubric in Spring of 1999 (Idaho State Department of Education, 1999).

Why Technology Planning?

The district and state technology plans are important documents for the following reasons (Ward, 1999):

- Technology plans document, in writing, the ties between technology use and state and local goals, objectives, and standards.
- Outline staff development and plans for integration of technology into the curriculum.
- Include evaluation plans to determine the effectiveness of technology integration plans.
- Provide a framework to support sustained federal, state, and private funding for educational technology.

District technology plans are kept on file by the ISDE to use as references and justification of state technology funding. Similarly, the state technology plan is kept on file by the U.S. Department of Education (USED) to support federal funding programs. Private grants are also supported by and related to the state and district technology plans.

IR020232

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

In recent years, the providers of federal, state, and private funding require much more information and justification than that required when plans were first developed in 1995-1996. Not only are planned expenditures required to be tied to stated educational goals, objectives, and standards, but funding providers are requiring some form of evaluation report to help determine the impact their dollars have made and to justify future funding. Adequate planning has become much more complex, and can no longer be completed by a single individual. Rather, representatives from all stakeholders – administrators, teachers, students, parents, community members, business leaders, etc. – are needed to participate in the planning process to provide broad-based support for the plan. In addition to broad-based support for educational technology, successful implementation of educational technology in the curriculum requires several other key elements: (a) a thorough needs assessment, (b) effective instructional objectives, (c) consistent, ongoing evaluation, and (d) periodic review and revision.

The Planning Process

Planning for educational technology is cyclic in nature, beginning and ending with an evaluation of where the district or state currently is and the goals the organization is attempting to reach. The planning process is influenced by the vision/mission statement of the district or state educational agency, and is firmly rooted in the needs of the individual district or state (see Figure 1).

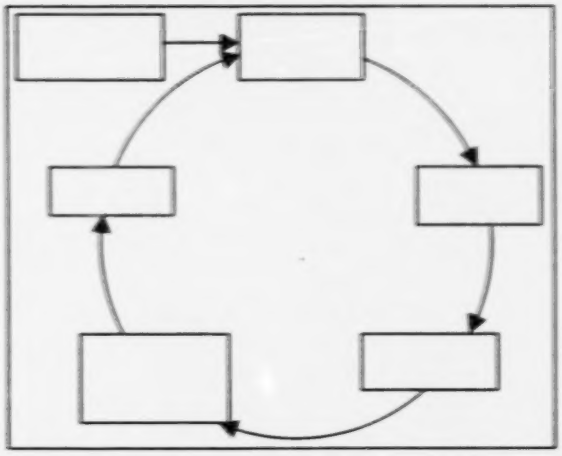

Figure 1: The Planning Cycle

1. Planning begins with a vision/mission statement and a thorough needs assessment. The vision/mission statement of the district or state gives direction to the needs assessment, which in turn may influence the vision/mission statement as needs are identified. The needs assessment describes the current status of technology (the initial state) and the desired status (the desired state) (Gagne, Briggs, & Wager, 1992). The difference, or "gap" between the initial and desired states identifies the needs.
2. From the identification of needs, goals are defined. Goals describe what is needed to close the gap between the initial state and the desired state identified in the needs assessment. Goals are general statements identifying the direction for the district or state to proceed.
3. Instructional objectives are critical to direct the curriculum and to complete the achievement of the educational goals. Objectives are measurable, attainable, understandable, and time-based. Objectives should:
   - Identify the content to be included in the curriculum.
   - Suggest a teaching methodology and the proper tools and aids needed to present the curriculum.

- Assist in the formulation of the means of evaluating student progress and achievement.

4. The instructional objectives drive the development and delivery of the instruction. Selection of the content, teaching methodology, delivery system and technologies, and testing methods are dependent upon the instructional objectives. Thus, in the context of this paper, the instructional objectives drive the technologies.
5. Evaluation of the instruction and student achievement is dependent upon the instructional objectives and the instruction delivered to the students. While there are many purposes in giving a test or other assessments (Linn & Gronlund, 1995), evaluation conducted at the end of an instructional unit is useful to determine student understanding, achievement, etc. The results of these tests may also be used to give insight into instructional effectiveness and usefulness of the teaching methodology and tools. It is important to note that the evaluation process may be used as a springboard into, or even as part of, the next cycle of needs assessment.

The Evaluation Component

Evaluation of student achievement is inseparable from the instructional objectives. The instructional objectives give direction to the instruction and mark the intended learning outcomes. Measurement and assessment determines the extent to which the objective has or has not been met.

The Idaho District Technology Plan Evaluation Rubric (Idaho State Department of Education, 1999) sets the requirements for planning the evaluation of technology integration in the curriculum:

- Measurement and assessment describes quantitative and qualitative assessments to evaluate the effects of technology integration in the curriculum.
  - Details relationship between local and state goals and instructional objectives, and measurement and assessment procedures.
  - Outlines plans to correlate results to the amount, quality, and length of integration into the curriculum.
- Includes the details of gathering longitudinal and pretest-posttest data.
- Details collection, organization, analysis, and reporting of measurement and assessment data.
- Includes schedules, funding sources, and budgets for evaluation.

The above requirements are intended to provide standards for planning an evaluation of the impact of educational technology on the curriculum. This standard was reviewed by the International Society for Technology in Education (ISTE) and approved by the ICTL (Idaho Council for Technology in Learning, 1999). These requirements must be met with an educational evaluation conducted either by district personnel, by an external independent evaluator, or by a combination of both. Because district and school administrators and faculty are practitioners rather than researchers, the ICTL has made no requirement that evaluations be conducted as experimental research with modeling and hypotheses testing, experimental and control groups, advanced statistical procedures, or other research methods. Instead, educational evaluation revolves around using those existing measurement instruments already in the classroom to describe the impact of educational technology on the curriculum.

Much of the information needed to evaluate projects included in a district technology plan is already in place in each district. Most teachers give some form of evaluation at the conclusion of major units of instruction. Additionally, statewide and standardized tests are administered systematically to all students. To complete the evaluation of the integration of technology at the district level, the existing measurement results need to be interpreted to determine the merits of the use of technology. There are numerous methods to accomplish this. Examine each bulleted statement in the rubric standard above:

1. *Measurement and assessment describes quantitative and qualitative assessments to evaluate the effects of technology integration in the curriculum.* Teachers, schools, and districts are *not* limited to quantitative measures only. Other measures, such as questionnaires and surveys, self-reports and interviews, and affective measures may be included as needed to accurately describe the effects of the technology in the curriculum.
2. *Details relationship between local and state goals and instructional objectives, and measurement and assessment procedures.* Evaluations are inseparably tied to the instructional objectives, which in turn are supported by local and state goals.

3. *Outlines plans to correlate results to the amount, quality, and length of integration into the curriculum.* Three broad factors impact the effect the integration of educational technology will have on any curriculum: (a) the amount of time spent with technology in the classroom, (b) the quality of technology use by the students and the teacher, and (c) the length of time individual teachers and students have been using educational technology for personal and academic purposes. Comparing these three factors with measures of student performance will yield insight into the effect that technology is having on the curriculum.
4. *Includes the details of gathering longitudinal and pretest-posttest data.* Analysis of longitudinal measures may be as simple as comparing the results of student measures on this year's tests with the results of last year's, next year's, or the next three or four years'. Currently, teachers occasionally include a pretest on certain topics prior to presenting the instruction. The evaluation plan may well include an expanded role for pretest-posttest measures. As this is a planning process, it is relatively unimportant that a teacher, school, or district does not have longitudinal or pretest-posttest data in place. Instead, it is much more important that plans for collecting such data are included and completed.
5. *Details collection, organization, analysis, and reporting of measurement and assessment data.* Reports are required by all providers of educational technology funding. As with all evaluation reports, the results are first described, then a judgment is made as to the worth or merit of the educational technology, teaching methodology, or curriculum project. The data will need to be collected, compiled and organized, analyzed, and placed into a report to the grantor. Analysis may be as elementary as descriptive summaries such as measures of central tendency, variability, and correlation, or as complex as advanced statistical procedures such as multiple analysis of variance, analysis of covariance, or non-parametric procedures.
6. *Includes schedules, funding sources, and budgets for evaluation.* This part of the rubric criterion guides planning to answer questions such as (a) when will the measures be given and the data collected, (b) how is the data going to be compiled and analyzed, (c) how much will this process cost, and (d) from where will the money come?

Annual Review and Update

To ensure that technology plans remain current, each state and district technology plan must be reviewed and updated on a regular basis, at least annually. The dangers of failing to regularly review and update technology plans include placing administrators in the position of (a) relying upon funding which has expired, (b) missing the opportunity to apply for new sources of funding, and (c) depending upon goals and objectives which are outdated or no longer valid. Annual reviews and updates allow the cyclic planning process (Fig. 1) to proceed naturally. Each review and update includes a needs assessment, with a description of the current or initial state of educational technology, and a description of the gap between the initial state and the desired state. Annual review and update allows realignment of goals, objectives, curriculum development, and evaluation, all based upon the mission and documented needs of the district and state.

References

Gagne, R. M., Briggs, L. J., & Wager, W. W. (1992). Principles of instructional design (4th ed.). New York: Harcourt Brace Jovanovich.

Idaho Council for Technology in Learning, (1998). Approved Minutes: Idaho council for technology in learning, December 17, 1998. Boise, ID: Idaho Council for Technology in Learning.

Idaho Council for Technology in Learning (1999). Approved Minutes: Idaho council for technology in learning, April 13-14, 1999. Boise, ID: Idaho Council for Technology in Learning.

Idaho State Department of Education (1996). Connections: A statewide plan for technology in Idaho public schools. Boise, ID: Idaho State Department of Education.

BEST COPY AVAILABLE

Idaho State Department of Education (1999). School district technology plans evaluation rubric. Boise, ID: Idaho State Department of Education. Available online: http://ictl.sde.state.id.us/documents/rubric.pdf

Linn, R. L. & Gronlund, N. E. (1995). Measurement and assessment in teaching (7th ed.). Upper Saddle River, NJ: Merrill.

Ward, D. (1999, August). Turn your technology plan into a powerful grant-seeking tool. eSchool News, p. 36.